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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,972	11/22/2003	Christopher Su-Yan Own	DACK.1.US	4438

7590 11/07/2006

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EXAMINER	
WILLIAMS, HOWARD L	

ART UNIT	PAPER NUMBER
2819	

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/718,972	OWN, CHRISTOPHER SU-YAN	
	Examiner	Art Unit	
	Howard L. Williams	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 22 November 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

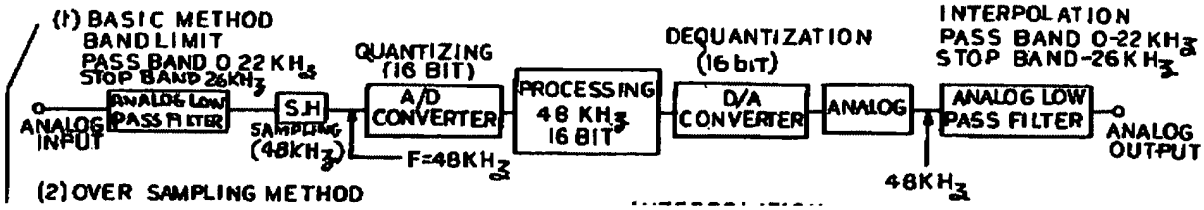
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 20040406.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5 and12-15 are rejected under 35 U.S.C.103(a) as unpatentable over Meyers et al. (US 5268688 A) in view of Yamasaki (US 5351048 A) and Stewart (An Overview of Sigma Delta ADCs and DAC Devices).

Meyers et al. discloses an audio DAC system that includes a DAC, transconductance stage, and low-pass filter. Meyers et al. does not disclose oversampling but uses linear reconstruction. Meyers et al. does not list the specs for corner frequency and attenuation. Yamasaki discloses in fig. 7 a collection of various systems the first of which is a traditional digital audio used prior to the wide adoption of oversampling and shows a stop band (corner frequency) in line with the recited about 30 KHz. Yamasaki does appear to list the attenuation rate recited.



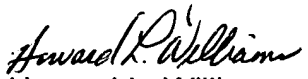
Stewart in the article An Overview of Sigma-Delta ADCs and DAC Devices discloses in section 2 and figure 1 Nyquist rate PCM system including a DAC and reconstruction filter and recognizes (as well known) that the filter would require high order filters providing 96 dB/octave roll-off (attenuation) for a non-oversampled system. The choice of the recited 80 dB/decade near that range or vice-versa and the choice of the specific number for the attenuation rate would have been a matter of filter design. Stewart continues with a well stated explanation of why oversampling has been so well embraced- because it relaxes the stringent filtering requirements required in Nyquist

rate systems; however, as Stewart illustrates in section 2 Nyquist rate systems are known even if not favored.

Claims 6-11 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers et al. (US 5268688 A) in view of Yamasaki (US 5351048 A) and Stewart (An Overview of Sigma Delta ADCs and DAC Devices) and further in view of Holloway et al. (US 20040252966 A1) and Hartman et al. (US 6943459 B2).

Meyers, Yamasaki and Stewert do not address the issue of powering their respective DACs; however, it goes without saying that their circuits require power. For portable devices, portable power sources are a necessity and batteries traditionally fill that role. Holloway et al. discloses a portable player with a rechargeable batterry and a switch (80: fig. 7) that operates to bring the battery to a recharging configuration. Holloway discloses lithium-ion batteries but not lead-acid. Hartman et al. discloses the equivalence noting that rechargeable batteries have traditionally been supplied with various chemical make-ups. "This has been traditionally solved by using assemblies of chemical batteries, either the one time use disposable batteries (such as alkaline, zinc-air), or the multiple use rechargeable batteries (such as nickel-cadmium, nickel-metal-hydride, lead-acid, lithium-ion)." (col. 1, line 40). Provision of rechargeable batteries would have been obvious because it is well recognized that portable electric circuits require portable electric power.

Any inquiry concerning this communication should be directed to Howard L. Williams at telephone number 571.272.1815. The Patent and Trademark Office central facsimile number for application specific correspondence intended for entry is 571-273-8300.



11/2/06
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